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Promoting Rational Drug Use in Jordan

February 2006

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PHR*plus*

Mission

Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:

- *Implementation of appropriate health system reform.*
- *Generation of new financing for health care, as well as more effective use of existing funds.*
- *Design and implementation of health information systems for disease surveillance.*
- *Delivery of quality services by health workers.*
- *Availability and appropriate use of health commodities.*

February 2006

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Center for Population, Health and Nutrition
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United States Agency for International Development

Abstract

At the request of the U.S. Agency for International Development (USAID) mission in Amman, the Partners for Health Reform*plus* (PHR*plus*) worked with the Jordanian Ministry of Health, the Joint Procurement Directorate, and the Jordan Food and Drug Administration to contribute to development of the Rational Drug Use (RDU) policy undertaken by the government. PHR*plus* encouraged a consensus-driven approach that involved the entities listed above and other key stakeholders in health care delivery. PHR*plus'* role comprised facilitation of two major activities:

- Organizational reforms that included the formation of the Jordanian National Drug Formulary (JNDF) Advisory Board, JNDF technical committees, and a RDU unit
- Rational selection of essential medicines

To date, significant progress has been made in completing these key objectives. The JNDF Advisory Board nominated its secretary, who will lead the RDU process. Ninety technical committees members were nominated by their agencies and confirmed by the Minister of Health. They have been responsible for revising and updating the Rational Drug List and National Drug Formulary. Three Advisory Board meetings, 75 technical committees meetings, and two national workshops were conducted to facilitate the work on the documents. By early 2006, the final draft of the drug list was under review. Meanwhile, PHR*plus* was building capacity at the RDU unit to ensure that it will become fully operational.

The formulation of the drug list is only one step toward implementing RDU activities. To promote RDU, additional key policy components will be developed in the near future: development of standard clinical guidelines, establishment of pharmacy and therapeutic committees, monitoring of drug utilization, and pharmacovigilence. Training and education on RDU also will be provided countrywide.

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Acronyms

EDL	Essential Drug List
JFDA	Jordan Food and Drug Administration
JNDF	Jordan National Drug Formulary
JRDL	Jordan Rational Drug List
MOH	Ministry of Health
NDP	National Drug Policy
PHR*plus*	Partners for Health Reform*plus*
P&TC	Pharmacy and Therapeutic Committees
RDU	Rational Drug Use
USAID	United States Agency for International Development
WHO	World Health Organization

Acknowledgments

The United States Agency for International Development made this study possible. We extend our appreciation to the agency's Dr. Salwa Al Bitar and Mr. David Piet for their continuous support in implementing optimal health sector reform in Jordan. Moreover, we express our sincerest gratitude to His Excellency the Minister of Health, Eng. Said Darwazah; and the Chairman of the Rational Drug Use Advisory Board and other board members for all their support and promotion of the rational drug use efforts. We also extend our appreciation to the technical committee members, charged with reviewing and updating the Rational Drug List and National Drug Formulary. Their level of commitment and dedication to this effort has been exemplary.

Finally, we would like to thank our colleagues in the Partners for Health Reform*plus* Jordan office for their significant contribution, and to Dr. Catherine Chanfreau, for her technical review of this document.

1. Introduction

Since 1998, Partners for Health Reform*plus* (PHR*plus*) has been delivering technical assistance to the Jordanian Ministry of Health (MOH) and other partners in that country. The assistance included three rounds of National Health Accounts, which estimated Jordan's expenditures on health for 1998, 2000, and 2001. All three estimates showed that between 30 percent and 35 percent of total health care expenditures is on pharmaceuticals. By all international measures, this level of spending is excessive, and will be difficult to sustain in light of the region's political unrest and the low economic growth rate expected for Jordan in the coming decade. Moreover, demographic factors will increase demand for health care services. In 2004, Jordan still had a high total fertility rate of 3.4, increased life expectancy at birth of 72 years, and a decreasing under-five mortality rate of 27 per 1,000 live births (UNICEF, 2005). All these factors have led the MOH officials to consider measures to contain costs, increase efficiency, and improve quality of care in the face of limited resources.

The earliest effort to rationalize drug use was development of the first Essential Drug List (EDL) in 1996 under the auspices of the MOH Drug Directorate. In 1998, the EDL was amended by level of care and the first Jordan National Drug Formulary (JNDF) was published. In 1999, committees were established in the Drug Directorate to promote rational drug use (RDU). Second editions of the EDL and JNDF were published in 2001 and 2002 respectively, but neither document was used in the country. This was attributed to the lack of consensus building and multidisciplinary approach in the development of the documents and limited government commitment to promoting RDU.

In 2002, Jordan joined the list of countries that have developed a National Drug Policy (NDP) (Hashemite Kingdom of Jordan, 2002). The NDP was to serve as a framework for future pharmaceutical use in both the public and private sector. The major objective of Jordan's NDP is to ensure that the medical needs of the population are covered by the availability at all times of essential drugs, consumables, and medical devices that are safe, effective, and of high quality. The other major objective is to improve the rational use of drugs by providers and consumers of health care services. The NDP in Jordan has 10 components, namely the legislative and regulatory framework; drug selection; drug supply; economic strategies for drugs; human resource development; monitoring and evaluation; research and development; technical cooperation among countries and international organizations; rational use of drugs; and other issues related to coordination between different directorates within the JFDA.

A NDP Management and Implementation Department was established in the Drug Directorate; it later became part of the Jordan Food and Drug Administration (JFDA), established in 2003. With this transfer, NDP and the RDU committees and activities appeared to have lapsed.

Jordanian officials identified the pharmaceutical sector as a priority area for health care reform interventions. In response to a request by the U.S. Agency for International Development (USAID) Mission in Jordan, PHR*plus* began to assist the MOH, Joint Procurement Directorate, and JFDA with the development of an RDU strategy and related activities. RDU promotion became a consensus-driven process with collaborative effort between these entities and other major partners, namely, the Royal Medical Services, Jordan University Hospital, King Abdullah University Hospital, and King Hussein Cancer Center.

In September 2003, PHR*plus* sponsored a two-day national workshop to develop a consensus-building approach to RDU strategy and promotion; collaborating on the workshop were the JFDA, the Australian Health Insurance Commission, and the World Health Organization (WHO). Several strategies were proposed to promote RDU. All participating groups agreed that the EDL and JNDF needed updating. Other strategies listed to promote RDU were the development of standard treatment guidelines, the creation and support of hospital pharmacy and therapeutic committees (P&TCs), the establishment of monitoring and research activities, training and education, and finally monitoring and regulating pharmaceutical's promotion.

This paper describes PHR*plus* involvement in the RDU policy process in Jordan. It discusses the RDU activities facilitated by the PHR*plus* team based on the consensus achieved among Jordanian stakeholders, results achieved to date, and policy components to be developed in the near future.

2. PHR*plus* Assistance in the RDU Policy Process

2.1 Goals

The overall goal of PHR*plus* was to assist the government of Jordan in formulating RDU policy, such that pharmaceuticals are managed and distributed rationally, and overall expenditures by both households and public sector are significantly reduced.

To achieve this goal, the following objectives to be accomplished with the assistance of the Project within a two-year time period were to:

- Update and promote Jordan Rational Drug List (JRDL)
- Update and promote Jordan National Drug Formulary for the JRDL
- Facilitate the adoption of Jordan Rational Drug List and Jordan National Drug Formulary for RDL by the government of Jordan.

The first two objectives proceeded simultaneously.

2.2 Major Activities

Major activities facilitated by PHR*plus* project included:

- Organizational reforms: formation of the JNDF Advisory Board, JNDF Technical Committees and the RDU unit
- Rational selection of essential medicines.

2.2.1 Organizational Reform

Formation of the JNDF Advisory Board

The eight-member JNDF Advisory Board was officially nominated after consultation with all counterparts. Its representation from different public sector entities ensures that the perspectives of all parties are taken into account in the development and implementation of the JNDF. Members collectively possess expertise in different areas related to drug program management, policy and standards development, clinical practice, and drug utilization research (WHO, 2004). The Minister of Health is chairman, and members are the Secretaries General of the MOH and the High Health Council, directors of the Royal Medical Services, the Jordan University Hospital, King Abdullah

Hospital, the JFDA, and the Joint Procurement Directorate. The director of the Joint Procurement Directorate, Dr. Maisa Saket, was elected as board secretary; the secretary takes the lead in RDU policy process and is the contact person for the technical committees members.

The Advisory Board is fully operational. It meets 2-4 times annually, and other communication takes place as required. Its responsibilities include:

- Nominating technical committee members
- Providing expert advice on the revision, updating, and production of the EDL
- Providing expert advice on the revision, updating, and production of the JNDF
- Reviewing drafts of deliverables, including reports
- Provide advice on policies, procedures, and rules for the distribution, dissemination, and implementation of the JNDF
- Advocating for the government's implementation and adoption of the JNDF

Over time, the membership of the Advisory Board may be expanded to include additional expertise from other organizations, such as the Jordan Medical Association and the Jordan Pharmaceutical Association.

Formation of JNDF Technical Committees

The establishment of JNDF technical committees is part of the RDU strategy in Jordan. The committees are responsible for revising and updating the JRDL and JNDF. Committee members, 90 in all, are nominated by their respective public sector agencies and officially appointed by the Minister of Health (see Annex A for list of committee members). They are experts in all medical and pharmaceutical fields (to the extent possible). This broad representation ensures that the perspectives of all parties are taken into account in the development and implementation of the JNDF (WHO, 2004).

Each technical committee has 6-8 members, representing different clinical specialties and includes a chief of department or a senior physician, and, ideally, two pharmacists.[1] The chief of department or the senior physician represents different medical specialties from MOH, Royal Medical Services, the Jordan University Hospital, King Abdullah University Hospital and King Hussein Cancer Center. One of the two pharmacists preferably has a clinical degree. Thus, the technical committees collectively possess expertise and the professional knowledge in different medical specialties, clinical practice, standards development, drug use in clinical practice, and prescribing information.

Each committee has an elected chairperson and a secretary from among its members, and it has a temporary advisor from the PHR*plus*, as required. Over time, the membership of the technical committee may be expanded to include expertise from other organizations, such as the Jordan Medical Association and the Jordan Pharmaceutical Association.

[1] Due to a shortage of pharmacy professionals in Jordan, some pharmacists sit on more than one technical committee.

There are currently 17 technical committees representing drugs classification according to the organ or body system that they treat:

Gastro-intestinal system	Nutrition and blood
Cardiovascular system	Musculoskeletal joint disease
Respiratory system	Eye
Central nervous system	Ear, nose and oropharynx
Infections	Skin
Endocrine system	Immunological products and vaccines
Obstetrics, gynaecology & genitourinary system	Anaesthesia
Immunomodulators and neoplastics	Poison treatment and antidotes
	Diagnostics

Technical committees' responsibilities include to:

- Develop a list of common problems and diseases in the country and identify the appropriate treatment for each of the common problem
- Review, combine, and update the existing JRDL and JNDF for each of the major entities
- Carry out evidence-based reviews and information
- Follow up new evidence and seek expert advice, when needed
- Consult, update, and coordinate with the Advisory Board on relevant issues
- Carry out continuous revision (as decided), maintaining, and updating of the different chapters of the JNDF
- Advocate for the implementation and adoption of the JNDF in their related health facilities.

Formation of RDU Unit

The RDU unit is the coordinating entity for all RDU activities in Jordan, including the continuous updating of JRDL and JNDF, and the development of standard treatment guidelines. The unit has just been staffed with two physicians and two pharmacists in order to start real functioning and to institutionalize RDU in Jordan. PHR*plus* assisted in establishing and furnishing the unit, which now operates out of the JFDA as recommended by the RDU strategy development workshop and approved by the Advisory Board.

2.2.2 Rational Selection of Essential Medicines

The selection of the JRDL is based on internationally recognized criteria obtained from several published WHO sources including: "The Selection and Use of Essential Medicines, 2002"; "Promoting Rational Use of Medicines, 2002"; and "WHO Model List of Essential Medicines, 2002."

The selection of essential medicines in Jordan uses 13 criteria:

1. **Relevance to disease**: treatment of prevalent diseases

2. **Efficacy and safety**: based on objective results from adequate pharmacological studies

3. **Quality**: selected pharmaceutical products have to meet adequate quality control standards, including stability and, when necessary, bioavailability

4. **Cost of treatment regimen**: cost of combination of drugs necessary to accomplish the treatment regimen versus unit cost of each drug

5. **Appropriateness of health workers capability at different levels of health care**: level of expertise required for prescribing, administering, and monitoring the safety and adverse effects of single drugs or group of drugs in a therapeutic category; competence of local personnel in making a correct diagnosis that requires the use of selected drugs

6. **Local health syndromes**: the influence of concomitant, locally prevalent diseases or conditions on pharmacokinetic and pharmacodynamic parameters modifying therapeutic response, e.g., malnutrition, liver disease

7. **Benefit/risk ratio**: when several comparable drugs are available for the same therapeutic indication, it is necessary to select the one that provides the most favorable benefit/risk ratio

8. **Preferential factors for evaluating therapeutically equivalent drugs**: when two or more drugs are therapeutically equivalent, preference should be given to:

    a. The drug most thoroughly investigated, and therefore, the best understood with respect to its beneficial properties and limitations

    b. The drug that is clinically appropriate for more than one disease

    c. The drug with the most favorable pharmacokinetic properties, e.g. to improve compliance, to minimize risk

    d. The drugs that are in a dosage form that is easy for the health staff to dispense and easily and safely administered to the patient

    e. The drugs that are easy for the patient to take or with the broadest acceptability

    f. The drugs, pharmaceutical products and dosage forms with favorable stability under anticipated local conditions for which storage facilities exist

    g. The drugs for which reliable local manufacturing facilities exist

9. **Drug formulation**: In the great majority of cases, the drugs should be formulated as single compounds. Fixed-ratio combinations are only acceptable when:

    a. The clinical value of simultaneous use of more than one drug is documented

    b. The therapeutic benefit of the combination is greater than the sum of each of the individual components

    c. The combination is safer than the use of an individual drug

d. The cost of the combination product is less than or equal to the total cost of the individual products

e. Compliance is improved

f. The combination must be such that sufficient quantities to meet the needs of the majority of the population can be maintained

10. **Periodic review of drug list**: annually or whenever necessary to incorporate significant new therapeutic advances and information:

    a. Generally, new drugs should be introduced only if they offer distinct advantages over previously selected drugs

    b. If, on the basis of new information, drugs already on the list are found to no longer possess a favorable benefit/risk ratio, drugs with a higher benefit/risk ratio should replace them

11. **International nonproprietary names**: generic names should be used for drugs

12. **Manufacturers**: Selected drugs with generic names should have a minimum of three manufacturers or/and two different trade names

13. **JFDA registration**: Selected drugs should be JFDA registered

Selection criteria as recommended by international organizations and other countries' experiences (Harvey, 2005; Hans, 2004; Reidenberg, 2004) also were discussed and distributed to all members. Other resources to facilitate the selection process, such as references and laptop computers, were provided by PHR*plus*. PHR*plus* consultants attended each meeting. One major decision taken by the chairpersons of every technical committee and approved by the Advisory Board was to re-name the Essential Drug List the Rational Drug List.

2.2.3 Achievements to Date

Three Advisory Board meetings, 75 technical committees meetings (see Annex B for list of meetings), and two national workshops have been conducted to facilitate the process of revising and updating JRDL and JNDF. The process started by collecting all the registered drugs that have been used in the public sector for the past five years. This list was then classified according to the above-mentioned classifications and distributed for review and updating to technical committees according to their areas of specialty. Early 2006, the Minister of Health asked Advisory Board members to review the final draft and comment on it. Once the list is finalized, it will be published.

In 2006, PHR*plus* will be assisting the RDU unit in developing job descriptions, defining responsibilities and roles, and formulating a workplan.

3. Future Steps in RDU Promotion

Composing a rational drug list is only one step toward implementing RDU. Drug selection must be followed by appropriate drug use by prescribers as well as by consumers. This may require different steps in different countries, depending on many factors such as their national drug policy or regulatory system. Development and promotion of a formulary process and clinical guidelines are concomitant steps (WHO 2004, 2002a, 2002b). The following sections discuss the recommended interventions that the RDU Unit should pursue to promote RDU and facilitate implementation of both the JRDL, and the JNDF (see also WHO 2004, 2002a, 2002b and Harvey, 2005).

3.1 Development of Standard Clinical Guidelines

Experience from other countries shows that even the shortest and the most restricted essential drug list or formulary can be misused through improper treatment of the most common and simple health problems. Thus essential drug programs have recommended the development of standard treatments to ensure therapeutically effective and economically efficient use of drugs.

Standard clinical guidelines are systemically developed statements designed to assist practitioners and patients in making decisions about appropriate health care for specific clinical circumstances. They are considered an effective tool for assisting health professionals in choosing the most appropriate treatment (drug and non-drug) for patients. Guidelines are valuable resources in the management of patients and their drug therapy because;

- Treatment of diseases may have many different approaches
- Many practitioners will not remember the best approach for treatments
- Applying the most cost-effective treatment will benefit both the patient and the health care system
- Drug list and formulary will have limited impact if they are used incorrectly

Treatment guidelines should be developed nationally as well as locally, updated regularly, and developed for preventive as well as for curative health care services.

In Jordan, there have been several isolated attempts to develop guidelines for common diseases. This has resulted in the development of different guidelines for the same disease, duplication of efforts, and lack of adoption and implementation. This issue has been thoroughly investigated in policy studies for the pharmaceutical sector done as part of Jordan Health Sector Reform Project in 2003 by the Australian Health Insurance Commission, in collaboration with JFDA (Australian Government Health Insurance Commission, 2004). Methodology for the development of standard treatment guidelines was established as part of that study. The RDU Unit should be the organizing body for this activity.

3.2 Establishment of Pharmacy and Therapeutic Committees

P&TCs are specialized policy-making and advisory committees responsible for improving drug management and rational use. The main role of P&TCs is to optimize RDU by evaluating the clinical use of drugs, developing policies for drug use and administration, and managing the formulary system. They can be formed at the national level or facility level. P&TCs are multi-disciplinary group chaired by a representative of the medical staff, administratively supported by pharmacy services (WHO, 2001). They represent all stakeholders involved in decisions about drug use. P&TCs are considered as an essential component of health care organizations' drug selection and use programs, and regarded as a tool for promoting RDU.

A preliminary study done by PHR*plus* to assess the presence of P&TCs in public and private hospitals in Jordan and evaluate their viability and functions made several findings. P&TCs exist in some public hospitals, mainly Jordan University Hospital and King Abdullah University Hospital, but they do not necessarily carry out the expected activities. Some are pre-tender committees that convene at the end of the year to prepare drug tenders for the coming yea. Some assume proper functions, but only episodically. An example is al-Basheer, the largest MOH hospital and the only one with a P&TC, which seems to lapse with change of administration or other factors. None of the private hospitals interviewed, including the largest, had any P&TCs. Jordan has officially nominated a national P&TC that will be charged with overseeing the continuous updating of the EDL and JNDF. It also will advise hospital P&TCs once they are established and operating. The Minister of Health has already issued the official letter to establish such committees in some of the hospitals that are in a pilot hospital accreditation and hospital system improvements project. PHR*plus* will offer technical assistance for the training and operating of these committees.

3.3 Monitoring Drug Utilization

As the WHO recommends, drug utilization data should be an integral component of national drug policies. This information can be collected on the national, local, or facility levels. Drug utilization studies can be medicine-oriented (focused on the use of a particular medicine), or problem-oriented (focused on the treatment of a particular disease or condition). It is unfortunate that few developing countries track drug utilization, because these studies can be used to follow trends in consumption and cost, compare one country against another, audit use of practice guidelines, inform policy at different levels, etc. In Jordan, this function will be assumed by the RDU Unit in consultation with the national P&TC at the national level, and with hospitals' P&TCs at the facility level.

3.4 Pharmacovigilence

The WHO defines pharmacovigilence as the monitoring of drug safety by means of spontaneous adverse-effect reporting systems, case control, and cohort studies. The aim of pharmacovigilence programs is to identify new, previously unrecognized adverse effects of medicines, to quantify the risk of this effect, and to communicate these results to the concerned regulatory entity for action. It includes monitoring and addressing medication errors, ensuring medication quality, and monitoring and addressing adverse drug reactions. This role should be played by all concerned people and institutions, which should institute a system for this.

In Jordan, this role is assumed now at the national level by the JFDA but it should not be left to work in isolation. P&TCs usually assume the responsibility for pharmacoviligence at the national as

well as the facility level. Pharmacoviligence centers such as the one at Jordan University Hospital and P&TCS should all cooperate and coordinate their work in this area.

3.5 Training and Education for RDU Promotion

Making the use of medicines safer and more cost-effective is the overall aim of RDU and P&TCs. This requires the compliance of all persons involved in this process, from prescribing, to dispensing, to use, and includes physicians and pharmacists, nurses, other health workers, and patients. There are many strategies to achieve this, including managerial, educational, and regulatory.

Unfortunately, in developing countries such as Jordan, health professionals' education on medicines and drug therapy usually ends with graduation; there are very few in-service education programs, and access to literature is limited. This makes it impossible for those health care professionals to stay informed and to update their knowledge and skills regarding the constant and accelerating changes in pharmaceuticals. Therefore, continuing educational programs – in-service programs, workshops, seminars, and others – at the national or facility level should be arranged and delivered by the health care system, mostly through P&TCs.

In the long term, RDU should be institutionalized and effected through national treatment guidelines, the EDL, and formularies utilized by teaching institutions for undergraduates, post-graduates and continuing education courses. Patient education also should be done, because well-informed, educated patients can influence RDU to a great extent. Over-the-counter drug sales constitute a large percentage of health care expenditures in the developing countries. An educated patient population will misuse drugs less, and exert less pressure on the providers for unnecessary drug therapy. Health care providers should contribute to this effort routinely, and the MOH and RDU Unit should launch a more targeted national health education programs and campaigns.

All of the above-mentioned activities require that the health care professionals and the public have access to reliable and unbiased source of information. A drug information resource center or library with 2-3 current authoritative reference books, drug journals, EDL, formulary manual, and standard treatment guidelines are the minimum required to achieve this at the hospital level. Drug newsletters and bulletins are other valuable resources for providing drug information in a more concise and more specific way and can be produced at the national as well as at the facility level, addressing medicine-related issues of special interest at the local level

Annex A. Technical Committee Members

01 GASTRO-INTESTINAL SYSTEM			
Chairperson	Dr. Consultant	Mustafa Al-Shunnaq	JUH
Reporter	Ph. Consultant	Sana' Ma'ytah	KAUH
	Dr. Consultant	Nayazi Abu Farsakh	KAUH
	Dr. Consultant	Karim Lutfi	MOH
	Dr. Consultant	Waleed Obeidat	RMS
	Ph. Consultant	Wae'l Ne'meh	MOH
02 CARDIOVASCULAR SYSTEM			
Chairperson	Dr. Consultant	Eyas Al-Mousa	JUH
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	Dr. Consultant	Abdullah Sa'adeh	KAUH
	Dr. Consultant	Monib Ayoub	MOH
	Dr. Consultant	Mohammad Kareem	RMS
	Ph. Consultant	Sufyan Meqdadi	KAUH
	Ph. Consultant	Sawsan Jaba'the	MOH
03 RESPIRATORY SYSTEM			
Chairperson	Dr. Consultant	Abdel Men'em Sharah	RMS
Reporter	Ph. Consultant	Waleed Rahahleh	MOH
	Dr. Consultant	Nazeer Obaidat	JUH
	Dr. Consultant	Mousa Malkawi	KAUH
	Dr. Consultant	Yousif Nei'mat	MOH
	Dr. Consultant	Abdel Hameed Al-Najada	RMS
	Ph. Consultant	Lo'ai Gharaibeh	KAUH
	Ph. Consultant	Sawsan Jaba'the	MOH
04 CENTRAL NERVOUS SYSTEM			
Chairperson	Dr. Consultant	Tawfiq Daradkeh	KAUH
Reporter	Ph. Consultant	Emad Al-Dughaim	RMS
	Dr. Consultant	Ziad Nusair	JUH
	Dr. Consultant	Nabhan Abu Sleih	MOH
	Dr. Consultant	Khaled Al-Hourani	RMS
	Ph. Consultant	Taiseer Malkawi	KAUH
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Wae'l Ne'meh	MOH
05 INFECTIONS			
Chairperson	Dr. Consultant	Najwa Khori-Bulos	JUH
Reporter	Ph. Consultant	Taiseer Malkawi	KAUH
	Dr. Consultant	Wae'l Hyajneh	KAUH

	Dr. Consultant	Mazen Abu Nseir	MOH
	Dr. Consultant	Ibrahim Khresat	RMS
	Ph. Consultant	Sawsan Jaba'the	MOH
	Ph. Consultant	Maysoon Al-Syouf	RMS

06 ENDOCRINE SYSTEM

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Reporter	Dr. Consultant	Amal Mdanat	MOH
	Dr. Consultant	Fawwaz Ammari	KAUH
	Dr. Consultant	Omar Malkawi	RMS
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Taiseer Malkawi	KAUH
	Ph. Consultant	Emad Al-Dughaim	RMS

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	Dr. Consultant	Mohammad Al-Dabbas	RMS
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	Dr. Consultant	Ali Al-Otoum	RMS
	Ph. Consultant	Taiseer Malkawi	KAUH
	Ph. Consultant	Salwa Al-Khalil	MOH
	Ph. Consultant	Emad Al-Dughaim	RMS

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	Dr. Consultant	Khaled Al Gthah	RMS
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Samir Kashoufeh	MOH
	Ph. Consultant	Ayman Khreisat	RMS
13 SKIN			
Chairperson	Dr. Consultant	Mohammad Sharaf	JUH
Reporter	Dr. Consultant	Moh'd Al-Abbadi	MOH
	Dr. Consultant	Mustafa Al-Obousi	KAUH
	Dr. Consultant	Mohamed Al Mohesein	RMS
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Maysoon Al-Syouf	RMS
14 IMMUNOLOGICAL PRODUCTS AND VACCINES			
Chairperson	Dr. Consultant	Najwa Khori-Bulos	JUH
Reporter	Dr. Consultant	Ali Mahid	MOH
	Dr. Consultant	Faisal Qtaish	KAUH
	Dr. Consultant	Ahmad Abu Zeid	RMS
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Jamal Afaneh	MOH
	Ph. Consultant	Ayman Khreisat	RMS
15 ANAESTHESIA			
Chairperson	Dr. Consultant	Ezdyad Badran	JUH
Reporter	Ph. Consultant	Lina Odeh	MOH
	Dr. Consultant	Thaher Al-Rabadi	KAUH
	Dr. Consultant	Abdel Azzez Amro	MOH
	Dr. Consultant	Mahmood Al Kurdi	RMS
	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Wae'l Ne'meh	MOH
16 POISONING TREATMENT AND ANTIDOTS			
Chairperson	Dr. Consultant	Mo'men Al-Hadidi	MOH
Reporter	Dr. Consultant	Bashir Khasawneh	KAUH
	Dr. Consultant	Kamel Al-Hadidi	JUH
	Dr. Consultant	Azmi Sadeq	RMS
	Dr. Consultant	Emad Abu Romman	RMS

	Ph. Consultant	Ahmad Abu Attyeh	JUH
	Ph. Consultant	Ikhlas Jaber	MOH
	Ph. Consultant	Ayman Khreisat	RMS
17 DIAGNOSTICS			
Chairperson	Dr. Consultant	Hazem Habboub	RMS
Reporter	Dr. Consultant	Hamza Al-Omari	KAUH
	Dr. Consultant	Azmi Al-Hadidi	JUH
	Dr. Consultant	Monib Ayoub	MOH
	Ph. Consultant	Yaser Al-Omari	MOH
	Ph. Consultant	Ayman Khreisat	RMS

Annex B. Technical Committee Meetings

00 All Committees	8-Mar-05	Tuesday	7:00 PM	Hyatt Hotel
01 GI	12-Mar-05	Saturday	7:00 PM	Four Season Hotel
01 GI	26-Mar-05	Saturday	7:00 PM	Four Season Hotel
01 GI	9-Apr-05	Saturday	7:00 PM	Royal Hotel
01 GI	20-Apr-05	Wednesday	7:00 PM	Kempenski Hotel
01 GI	13-Jul-05	Wednesday	7:00 PM	Hyatt Hotel
01 GI	13-Jul-05	Wednesday	7:00 PM	Hyatt Hotel
02 Cardiovascular	14-Mar-05	Monday	7:30 PM	Holyday Inn Hotel
02 Cardiovascular	4-Apr-05	Monday	6:00 PM	Four Season Hotel
02 Cardiovascular	27-Apr-05	Wednesday	7:00 PM	Hyatt Hotel
02 Cardiovascular	18-May-05	Wednesday	7:00 PM	Hyatt Hotel
02 Cardiovascular	18-Jul-05	Monday	7:00 PM	Hyatt Hotel
02 Cardiovascular	18-Jul-05	Monday	7:00 PM	Shearton Hotel
03 Respiratory	14-Mar-05	Monday	6:00 PM	Holyday Inn Hotel
03 Respiratory	22-Mar-05	Tuesday	7:00 PM	Amra Hotel
03 Respiratory	12-Apr-05	Tuesday	7:00 PM	Hyatt Hotel
03 Respiratory	8-Aug-05	Monday	7:00 PM	Shearton Hotel
03 Respiratory	17-Aug-05	Wednesday	7:00 PM	Hyatt Hotel
04 CNS	20-Mar-05	Sunday	7:00 PM	Royal Hotel
04 CNS	30-Mar-05	Wednesday	7:00 PM	Hyatt Hotel
04 CNS	6-Apr-05	Wednesday	7:00 PM	Hyatt Hotel
04 CNS	20-Apr-05	Wednesday	7:00 PM	Kempenski Hotel
04 CNS	24-Apr-05	Sunday	7:30 PM	Kempenski Hotel
04 CNS	6-Jun-05	Monday	7:00 PM	Four Season Hotel
04 CNS	27-Jul-05	Wednesday	7:00 PM	Shearton Hotel
05 Infection	14-Mar-05	Monday	7:00 PM	PHRplus Office
05 Infection	29-Mar-05	Tuesday	7:00 PM	PHRplus Office
05 Infection	4-May-05	Wednesday	7:00 PM	Hyatt Hotel

05 Infection	15-Jun-05	Wednesday	7:00 PM	Hyatt Hotel
06 Endocrine	15-Mar-05	Tuesday	2:00 PM	Dr. Ajloni Office
06 Endocrine	29-Mar-05	Tuesday	7:00 PM	Kempenski Hotel
06 Endocrine	14-Jun-05	Tuesday	7:00 PM	Hyatt Hotel
06 Endocrine	21-Jun-05	Tuesday	7:00 PM	Hyatt Hotel
06 Endocrine	22-Jun-05	Wednesday	7:00 PM	Hyatt Hotel
06 Endocrine	19-Jul-05	Tuesday	7:00 PM	Shearton Hotel
07 Obstetrics	19-Mar-05	Saturday	7:30 PM	Four Season Hotel
07 Obstetrics	2-Apr-05	Saturday	7:30 PM	Royal Hotel
07 Obstetrics	16-Apr-05	Saturday	7:30 PM	Royal Hotel
07 Obstetrics	27-Sep-05	Tuesday	7:00 PM	RDU-JFDA Office
08 Immunomodulators	12-Mar-05	Saturday	7:00 PM	Four Season Hotel
08 Immunomodulators	13-Mar-05	Sunday	7:00 PM	Four Season Hotel
08 Immunomodulators	19-Mar-05	Saturday	7:00 PM	Four Season Hotel
08 Immunomodulators	3-Apr-05	Sunday	7:00 PM	Royal Hotel
08 Immunomodulators	4-Apr-05	Monday	7:00 PM	Four Season Hotel
08 Immunomodulators	27-Apr-05	Wednesday	7:00 PM	Hyatt Hotel
08 Immunomodulators	3-May-05	Tuesday	7:00 PM	Four Season Hotel
08 Immunomodulators	1-Aug-05	Monday	7:00 PM	Hyatt Hotel
09 Nutrition	15-Mar-05	Tuesday	6:00 PM	Hyatt Hotel
09 Nutrition	22-Mar-05	Tuesday	6:00 PM	Hyatt Hotel
09 Nutrition	15-Aug-05	Monday	7:00 PM	Hyatt Hotel
10 Musculoskeletal	23-Mar-05	Wednesday	7:00 PM	Hyatt Hotel
10 Musculoskeletal	12-Apr-05	Tuesday	7:00 PM	Hyatt Hotel
10 Musculoskeletal	9-May-05	Monday	7:00 PM	Hyatt Hotel
10 Musculoskeletal	10-Aug-05	Wednesday	7:00 PM	Shearton Hotel
11 Eye	20-Mar-05	Sunday	10:00 AM	Royal Hotel
11 Eye	29-Mar-05	Tuesday	7:00 PM	Royal Hotel
11 Eye	3-Apr-05	Sunday	6:00 PM	Royal Hotel
11 Eye	17-Apr-05	Sunday	7:30 PM	Shearton Hotel
12 ENT	23-Mar-05	Wednesday	7:00 PM	Hyatt Hotel
12 ENT	30-Mar-05	Wednesday	7:00 PM	Hyatt Hotel
12 ENT	6-Apr-05	Wednesday	7:30 PM	Hyatt Hotel

12 ENT	26-Sep-05	Monday	7:00 PM	RDU-JFDA Office
13 Dermatological	22-Mar-05	Tuesday	7:00 PM	Amra Hotel
13 Dermatological	6-Apr-05	Wednesday	7:00 PM	Hyatt Hotel
13 Dermatological	28-Sep-05	Wednesday	7:00 PM	RDU-JFDA Office
16 Anaesthesia	15-Mar-05	Tuesday	7:00 PM	Hyatt Hotel
16 Anaesthesia	29-Mar-05	Tuesday	6:00 PM	Royal Hotel
16 Anaesthesia	12-Apr-05	Tuesday	6:30 PM	Hyatt Hotel
16 Anaesthesia	4-May-05	Wednesday	7:00 PM	Hyatt Hotel
16 Anaesthesia	2-Oct-09	Sunday	6:00 PM	RDU-JFDA Office
16 Antidotws and antivenoms	17-Mar-05	Thursday	6:00 PM	Meridian Hotel
16 Antidotws and antivenoms	30-Mar-05	Wednesday	7:00 PM	Hyatt Hotel
16 Antidotws and antivenoms	13-Apr-05	Wednesday	7:00 PM	Shearton Hotel
17 Diagnostics	21-Mar-05	Monday	7:00 PM	Amra Hotel
17 Diagnostics	20-Apr-05	Wednesday	7:00 PM	Kempenski Hotel

Annex C: References

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